

THE VICIOUS CIRCLES OF NEURASTHENIA.

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READING.

NEURASTHENIA is more often than any other disorder complicated by vicious circles. The result is a chronic self-perpetuating condition, distressing to the sufferer, harassing to the relatives, and baffling to the physician.

If a disorder is to be followed by speedy recovery, its reactions—for example, cough, diarrhoea, pyrexia, etc.—must relieve the primary condition. Such disorders may be described as self-terminating.

In neurasthenia, on the other hand, the reactions perpetuate the primary condition. Such reactions may be psychical, and take the form of nosophobia, melancholy, anorexia, insomnia *inter alios*; or the reactions may be somatic, and take the form of cardiac disorder, dyspepsia, ovarian neuralgia, asthenopia. All such reactions perpetuate the primary neurasthenia. Campbell Smith well sums up the process when he says:

In no complaint does it happen more often than in neurasthenia that the patient gets into a vicious circle, the fundamental disorder producing symptoms which maintain and aggravate the disease.¹

In the language of pathology we may say that the chronic exhaustion of the neurons which characterizes neurasthenia gives birth to secondary disorders which perpetuate the exhaustion of the neurons.

The study of vicious circles is indispensable to the practitioner of medicine. At every corner does he meet with this complication, which is accountable for many of the tangled processes of disease. Mathieu and Roux thus emphasize the importance of circles in neurotic dyspepsia:

There is in these cases an interlocking system of vicious circles with which the physician must be familiar if he wishes to understand the mechanism of the diseased organism, and if he wishes his treatment to be logical and useful.²

And the same is true of all departments of practice. In fact, a large part of the *ars medendi* is concerned in dealing with this complication.

In support of these propositions I may call as witnesses some independent authorities who have referred to psychical and somatic circles. Space only allows reference to a few typical examples.

PSYCHICAL CIRCLES (FIG. 1).

Phobias.—Disorder of the ideational life is a striking feature of neurasthenia. This often leads to the genesis of anxieties and phobias, which prolong the state of exhaustion of the neurons. Thus Dubois writes:

In neurasthenia one must take into account the real fatigue of the nervous centres, which, on the one hand, results directly from morbid states of mind, and, on the other, furnishes new food for auto-suggestions. Here we have the eternal vicious circle in which the neuroses travel. Their real ills give birth to their fears and their phobias, and, on the other hand, their mental representations of a pessimistic nature create new disorders.³

Binswanger also well describes this circle:

The execution of any physical or mental task which on previous occasions had brought on attacks of severe exhaustion and other symptoms associated with it may reawaken an imaginary phobia of a similar attack of exhaustion either at the commencement or during the execution of the task. Such a phobia may then excite a series of abnormal sensations which in their turn provide fresh food for the phobias and intensify their influence on the emotional condition. This vicious circle may even culminate in a dread of death—that is, in the imaginary cessation of all vital functions.⁴

Mental Depression.—Mental depression is another common symptom of neurasthenia and aggravates the condition. Thus Müller writes:

The mental depression reacts on nutrition, sleep, and the other vital functions, and thus creates a grievous vicious circle, which aggravates the primary disorder.⁵

Anorexia Nervosa.—A complex circle may be established when the perverted ideation leads to loss of appetite, refusal of food, and consequent emaciation. In severe cases the victim, usually a woman, becomes a bedridden, helpless invalid—a burden to herself and her family. By degrees the malnutrition reduces the body to little more

than a skeleton, and a fatal *exitus* often closes the scene. Schofield thus describes the circle:

A vicious circle is often kept up in these cases, which it is absolutely essential to break. They begin, it may be, with loss of appetite from some slight cause. This . . . leads to disordered thoughts, and the idea of disease is started. This, again, makes the appetite still more capricious; the thoughts therefore get still worse, and so the body starves the brain and the brain starves the body.⁶

Insomnia.—Insomnia is another psychogenous symptom of neurasthenia which often greatly impedes recovery; the associated cerebral hyperaemia prevents the neurons obtaining the rest on which their recuperation so greatly depends. Sawyer thus describes the circle:

Any cause which directly prevents a repose duly deep of a sufficient number of those brain cells which are the organs of conscious thought will render sleep impossible. Relative cerebral hyperaemia is an inseparable consequence of such activity, and such relative cerebral hyperaemia becomes a concurrent but subordinate cause of insomnia. Here there is progression through a vicious circle of two terms, in which the impulse of the morbid movement springs from the cerebral cells.⁷

These four examples will serve as illustrations of psychical circles. It need hardly be added that several circles frequently coexist; their effect will then be cumulative, and lessen the prospects of recovery.

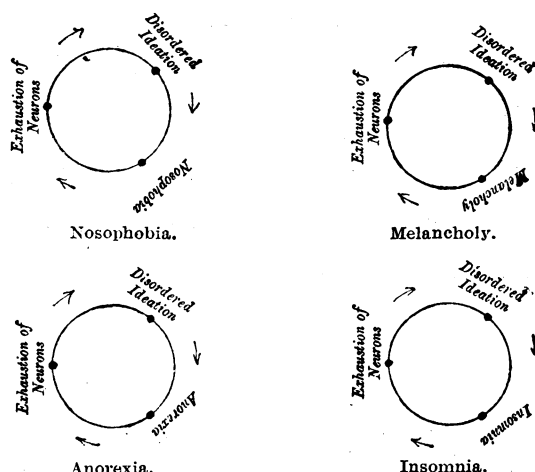


FIG. 1.—CIRCLES ASSOCIATED WITH PSYCHICAL DISORDERS.

SOMATIC CIRCLES (FIG. 2).

Such a multiplicity of these are met with in neurasthenia that a few typical examples must suffice.

Cardiac Disorder.—Neurasthenic persons are frequently obsessed with the fear of heart disease, and the consequent worry intensifies the neurasthenia. The sequence of events is somewhat as follows: The fear of organic heart disease leads to auto-suggested sensations in the cardiac region, followed by disturbance of the cardiac action, such as tachycardia, occasional extra-systoles with palpitation, and an intermittent pulse. The associated sensations then arouse distress and terror, which in their turn further disturb the cardiac activity. Such attacks are especially common at night, and may be caused by nightmare, and the operation of this circle may reduce the neurasthenic person to a condition of utter prostration, or even lead to fatal syncope. André-Thomas thus describes the condition:

Not only may neurasthenia give rise to cardiac disorders and anxieties, but cardiac anxieties may also give rise to neurasthenia. . . . Emotions, kept alive by fear, aggravate the symptoms or create fresh ones. Thus the patient becomes involved in a vicious circle, which will persist until he can be convinced that there is nothing amiss with his heart.⁸

Dyspepsia.—Probably the digestive system is more often affected by vicious circles than any other system, owing to the peculiarly intimate relation between the central nervous system and the viscera. Drummond thus refers to this liability:

The subject of neurasthenia fails to digest his food, and suffers in consequence, a vicious circle being established.⁹

Bain also writes:

Digestive disorders are very common, and, while primarily due to the nervous exhaustion, the state of the stomach reacts

on the patient's condition, and makes the neurasthenia worse, so that a vicious circle is established.¹⁰

Did space permit, it would be easy to show how pyorrhoea, atonic dyspepsia, gastrectasis, colitis, visceroprosis, diarrhoea, vomiting may also form circles in neurasthenia. We must content ourselves with one quotation from Strümpell dealing with the circle in constipation:

Habitual constipation is frequently associated with general neurasthenia. The nature of this association is probably not the same in every case. Often neurasthenia and constipation seem to be co-ordinate symptoms; sometimes existing constipation has an unfavourable effect upon the psychological condition of patients, rendering them feeble, fretful, out of sorts, and nervous. As a rule, however, neurasthenia is the primary disease, and then the irregularity of the bowels appears as a result of abnormal nervous influences or secondary conditions. Often the two states act in a vicious circle, each sustaining and aggravating the other.¹¹

Masturbation.—This vicious habit is often associated with a vicious circle, as Oppenheim points out:

In many cases we have a vicious circle; the tendency to masturbation is in itself a symptom of neuropathic diathesis, and the masturbation again gives rise to a crowd of nervous disorders.¹²

Impotence.—Impotence is a common complication of neurasthenia, and arises from mistrust of self or from an

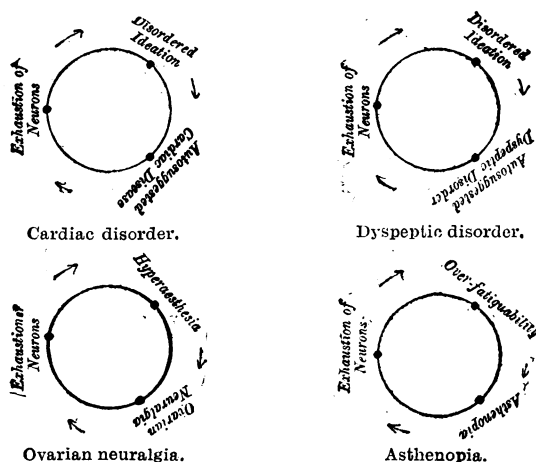


FIG. 2.—CIRCLES ASSOCIATED WITH SOMATIC DISORDERS.

exaggerated fear of the effects of early masturbation, or from the remembrance of previous failures. The mere thought that coitus will be impossible or unsatisfactory is enough to make it so. Failure paves the way for future failure.

All forms of psychical impotence react on the moral, and give rise to psychical disturbance which is associated with phobias and obsessions, and ends in neurasthenia. This in its turn aggravates the functional disorders, so that the sufferer becomes involved in a vicious circle.¹³

Uterine Disease.—Faure and Siredey thus refer to the circle so often established by disease of the sexual organs in women:

Women suffering from some disease of the sexual organs frequently show signs of physical and moral depression which is closely allied to neurasthenia. Worn out by their sufferings, often anaemic through loss of blood or through prolonged confinement to the house, either in bed or on the sofa, these unfortunate women grow thin and feeble, and give way more to discouragement. They are now entrapped in a vicious circle, from which escape is difficult. Their neurasthenia induces dyspeptic disorders, and their malnutrition tends to aggravate their neurasthenia.¹⁴

Pain.—In a neuropathic person almost any painful disorder is liable to increase the neurosis. Herman thus describes the reciprocal relation between pain and neurasthenia:

The great causes of neurasthenia are conditions which (a) cause continuous pain and (b) prevent sleep. The two things often form a vicious circle. A small local cause disturbs sleep, and want of sleep makes the nervous system over-sensitive. In proportion as the neurasthenic symptoms have coincided in time with the development of local pain, so surely may we conclude that the removal of the local pain and the procuring of sound sleep will cure the neurasthenia.¹⁵

THE BREAKING OF THE CIRCLE.

The treatment of neurasthenia resolves itself into breaking the vicious circles that complicate the disorder. Hence the importance of the physician being familiar in detail with the various factors which perpetuate the morbid gyrations. Prepare your plan of campaign. Seek the *locus minoris resistentiae*, and direct your broadside so as to effect a breach at the weakest spot. In functional disorders the treatment of symptoms may in itself be of great importance. As Tuckey says, although with a tinge of exaggeration:

In neurasthenia and other functional diseases if we remove all the symptoms we cure the disease. Neurasthenia is at least half psychical in its causation and maintenance, and therefore demands psychical means for its cure. Many of the components of the vicious circle formed act directly as factors in keeping up the condition—for instance, the insomnia, the constipation, the atonic dyspepsia, the disturbance of the genital functions. These are in detail and collectively acted upon by suggestion to an extraordinary extent.¹⁶

The statement is somewhat exaggerated since even the total removal of symptoms must leave untouched the primary nervous condition which gave birth to the morbid correlations, and this will need attention if the improvement is to be permanent.

There are three main lines of treatment by which we may attack the pathological sequences of neurasthenia: (a) psychotherapy, (b) systematic treatment, (c) local treatment.

(a) Psychotherapy.

Psychical disorders will create and psychical treatment will often break a vicious circle.

As indicated above, there are numerous circles in which disordered ideation gives birth to subjective symptoms, which are magnified by auto-suggestions and in turn aggravate the disordered ideation. In such cases auto-suggestions must be met by counter-suggestions. If the ideas connected with symptoms can be driven out of consciousness, the circle will often be broken and the patient cured. Herein lies the value of the dominating personality of a trusted physician who can inspire the patient with implicit confidence that the nervous disorder is purely functional and is certainly curable. When this has been accomplished a long stride towards recovery has been taken. Phobias and auto-suggestions vanish, self-confidence and the *joie de vivre* return. The physician who has the deepest insight into mental processes, who can read the secret thoughts and emotions of his patient, and who has the force of character that compels assent, will most often be victorious. It is to such cases that Strümpell refers when he says:

It is true of all neurasthenic conditions that they are cured not by physic, but by the physician.¹⁷

(b) Constitutional Treatment.

Although psychotherapy may bring instant relief the primary disorder is as a rule not permanently cured. The chronic exhaustion of the neurons remains, with an abiding tendency to relapse on provocation. Carefully devised constitutional treatment is here called for, therapeutic measures being carefully adapted to each case. Rest, work, isolation, supernutrition, change of air and environment, may each and all prove efficient in suitable cases.

Perhaps the most brilliant success in breaking circles is to be found in the Weir Mitchell treatment of those troublesome forms of anorexia and emaciation which were the despair of earlier physicians. Mathieu and Roux thus describe the circle that complicates such cases:

These weak and emaciated patients with no appetite, bad digestion, and taking inadequate food are involved in a vicious circle, for their weakness due to the long-continued insufficiency of food aggravates their neurosis as well as their dyspepsia, and this leads to further restriction in their daily supply of food. Rest and better alimentation are the only way of curing them.¹⁸

The genius of Weir Mitchell enabled him to analyse this circle into its constituent factors and to devise his well-known method of treatment. By his régime of isolation, rest, massage, electricity, and supernutrition, the gyration is arrested—confirmed, querulous invalids being transformed into fine specimens of womanhood.

(c) *Local Treatment.*

There remain some circles which neither psychotherapy nor constitutional treatment will break. To such the words of Sir Clifford Allbutt apply:

In neurasthenics a local ill, acting and reacting thus, establishes a short circuit and a vicious circle; and the local ill must be at once readjusted.¹⁹

Here the physician, while ever bearing in mind the dangers of local treatment, that is, the danger of increasing auto-suggestibility, must be prepared to use every weapon in his armamentarium. Hygienic measures, drugs, surgical appliances and operative interference may all be useful in breaking the circle, so that the perverted forces of Nature can resume their normal course. The improved local condition reacts beneficially on the general neurosis; each factor aids the other. In the words of André-Thomas:

The local improvement encourages the sufferer and thus acts beneficially on his general health. His morale improves and this in turn exercises a favourable reaction on the local disorder. The vicious circle is broken.²⁰

CONCLUSION.

It is strange that so little attention has hitherto been directed to this self-perpetuating factor in disease. Primary reactions are the commonplaces of our textbooks. But the reciprocal influence of those reactions on the original disorder is scarcely thought worthy of consideration. And yet this factor is of immeasurable significance in the evolution, progress and termination of disease. There is much need for a textbook of therapeutics based on the principle that the *ars medica* mainly consists in "breaking the circle," and intended to guide the practitioner in his attack on the *locus minoris resistentiae*.

Meanwhile, the philosophic physician who studies the operations of the circle will find his horizon widened and his range of vision extended. His further prospect will assist him in steering his patient safely to the desired haven. True, he will discover that the famous Hippocratic dictum—

νόσων φύσει ἰητοί

proves a delusion so far as neurasthenia is concerned. But he can triumphantly reply—

τεχνῇ κρατοῦμεν ὧν φύσει νικώμεθα †

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INTERNAL SECRETIONS AND DENTAL CARIES:

WITH SPECIAL REFERENCE TO THYROID INSUFFICIENCY.

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THE glands whose secretions may possibly influence the resistance of the tissues to caries are the thyroid, the pituitary, and the thymus, and in each case it is deficiency which may be responsible for an increased susceptibility. It is possible that each of these glands pours into the blood stream certain substances which influence lime salt metabolism and utilization, and which might be called "osteogenetic" or "dentogenetic" hormones.

Thyroid Insufficiency.

Of recent years attention has been drawn by Dr. Leonard Williams¹ and others to the fact that calcium utilization

in the body is intimately associated with the metabolism of the thyroid gland. It is supposed that the internal secretion of the thyroid acts as a lime salt fixative in the body, and that when it is absent or deficient the formative organs or tissues are unable to utilize, or to hold, the salts present in the blood, and so the bones and teeth do not calcify to the normal extent.

From clinical evidence I am inclined to think that there is an association between that condition seen in children which is now diagnosed as thyroid insufficiency and the presence of dental caries. This, however, is an exceedingly difficult matter to decide definitely, as there are so many concomitant circumstances relating to habits and food which require to be considered and eliminated. Some writers on the subject would obviously go too far in attributing health or disease of the teeth almost entirely to the effect of the thyroid gland. H. E. Waller,² for instance, claims that by giving thyroid extract to a child who had very carious deciduous teeth, the condition of the first permanent molar and central incisor teeth was affected, and when they erupted they appeared "to be all that could be desired." Such an argument is, of course, by itself fallacious, but in addition it is necessary to point out that at the age when the thyroid extract was given (6 years) the crowns of the first permanent molars and central incisors were already completely formed. This case would rather go to show that in spite of thyroid deficiency teeth can be well formed.

Effect of Thyroidectomy.

In order to obtain some precise data as to the possible effect on the teeth produced by loss of the internal secretion of the thyroid, thyroidectomy has been performed by the writer on a number of young rabbits. The result of this operation in rodents is admittedly various, some authorities stating that the animals survive, others that the effect is rapidly fatal. My experience supports the latter view; I only succeeded in getting one rabbit to live. The others (four) died within a week. The animal which survived was kept for twelve months and then killed; it thrived well and was apparently perfectly healthy; on *post-mortem* examination no trace of thyroid gland was present.

Alimentary Absorption.

In order to ascertain to what extent any deficiency of development might be due to deficient digestion or absorption in the intestines, the amounts of undigested starch and of calcium in the faeces were estimated on several occasions and compared with that of normal animals. It was found that the amount of calcium in the faeces of a thyroidectomized rabbit was slightly in excess of that in the controls, but that starch was much better digested than normally.

The average figures were as follows:

	Calcium Excreted in Faeces.	Amount of Starch Undigested.
	Per cent.	Per cent.
Thyroidectomized animal	1.168	18.018
Control	0.634	21.83

The amount of starch undigested in the faeces is decidedly low. I have not previously observed it in normal rabbits to be below 20 per cent. under any circumstances. This increased utilization of starch probably accounts for the animals' general fat condition. The loss of calcium is considerably in excess of the normal, and it might be supposed that this would have a prejudicial effect upon the calcium content of the bones and teeth.

Composition of the Teeth after Thyroidectomy.

The teeth were to the naked eye well formed and normal, the only difference being that they were extremely white and quite devoid of that yellow staining and fine black deposit* which is almost universally present in rodents'

* This particular form of black stain or deposit is not due to accidental staining by tobacco or foods, but is "biochemical" in origin, being produced either by chromogenic bacteria or from haemoglobin. It is most commonly seen in the cervical region of teeth in children who are immune, or nearly so, and is not improbably allied to the dark coloration which almost invariably accompanies a spontaneous arrest of caries.

* Nature is the healer of diseases.
† Art triumphs where Nature fails.